

# Formal Models SS 2017: Assignment 3

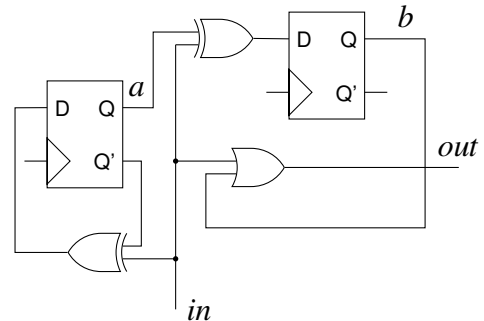
Institute for Formal Models and Verification, JKU Linz

Due 30.03.2017

To indicate that you solved an exercise and that you can present it in the exercise group, tick it off in our MOODLE course until **11am on the day of the exercise**.

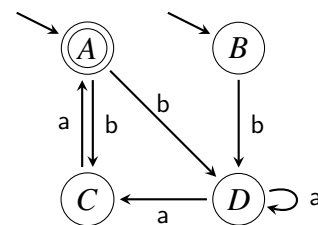
## Exercise 9

Draw an I/O-automaton modelling the digital circuit shown on the right. Use  $\Sigma := \Theta := \{0, 1\}$  as input- and output-alphabet.



## Exercise 10

Draw the I/O-automaton for FA A as shown on the right.



## Exercise 11

Draw the automata (cf. lecture slide 19) for PA  $P$ , where  $P = a.c.Q + a.(b.P + c.P)$ ,  $Q = a.c.P + b.P$ .

## Exercise 12

Draw the automata (cf. lecture slide 19) for PA  $P$ , where  $P = b.(b.R + a.Q)$ ,  $Q = c.a.Q + b.R$ ,  $R = b.P + b.c.R$ . Show that action  $Q \xrightarrow{b} R$  can be executed by subsequently applying the semantical rules of PA.